TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/772,597
Filing Date	02/06/2004
First Named Inventor	Urbain A. von der Embse
Art Unit	2112
Examiner Name	Stephen M. Baker
Attorney Docket Number	

Total Number of Pages in This Submission

ENCLOSURES   *(Check all that apply)*

☐ Fee Transmittal Form
  ☐ Fee Attached

☒ Amendment/Reply
  ☐ After Final
  ☐ Affidavits/declaration(s)

☐ Extension of Time Request

☐ Express Abandonment Request

☐ Information Disclosure Statement

☐ Certified Copy of Priority Document(s)

☐ Reply to Missing Parts/ Incomplete Application
  ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53

☐ Drawing(s)

☐ Licensing-related Papers

☐ Petition
☐ Petition to Convert to a Provisional Application
☐ Power of Attorney, Revocation Change of Correspondence Address

☐ Terminal Disclaimer

☐ Request for Refund

☐ CD, Number of CD(s) _____
  ☐ Landscape Table on CD

☐ After Allowance Communication to TC

☐ Appeal Communication to Board of Appeals and Interferences

☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)

☐ Proprietary Information

☐ Status Letter

☐ Other Enclosure(s) (please Identify below):

Remarks

Amended Specification and Claims in response to Office Action 04/05/2007

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	
Signature	Urbain A. von der Embse
Printed name	Urbain A. von der Embse
Date	04/27/2007
Reg. No.	

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	Urbain A. von der Embse		
Typed or printed name	Urbain A. von der Embse	Date	04/27/2007

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,597	02/06/2004	Urbain Alfred von der Embse		5182

7590	04/05/2007

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EXAMINER
BAKER, STEPHEN M

ART UNIT	PAPER NUMBER
2112	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/772,597	VON DER EMBSE, URBAIN ALFRED
	Examiner	Art Unit	
	Stephen M. Baker	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE **3** MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *30 December 2006*.

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-3* is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-3* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *30 December 2006* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a) ☐ All b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)

4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

DETAILED ACTION

Specification

1.   The disclosure is objected to because of the following informalities:

On page 3, in line 9, "a-powteriori" apparently should be "a-posteriori."

On page 6, in line 15, "n" apparently should be "N."

On page 14, in lines 33 and 35, "(k=1)" apparently should be "(k)."

On page 20, in lines 23-24, "new maximum a-posterior MX replaces the

maximum likelihood ML" apparently should be "new maximum a-posteriori algorithm MX

replaces the maximum likelihood algorithm ML."

On page 22, in line 4, "p(x|y) p(x|y)" apparently should be "p(x|y)."

On page 23, in line 4, "p(y|x) p(x) p(y)" apparently should be "p(y|x) p(x)/p(y)."

On page 24, in line 20, "po(x'|y)" apparently should be "p(x'|y)."

The treatment of what apparently was once described (page 41 of the marked-up

specification) as "the modification that the a-priori probability p(x(k))=p(d(k))=0

corresponding to setting the probability p(d(k)=+1)-p(d(k)=-1)=1/2" is unclear. It is not

clear why the last term "p(d(k))" has been added by amendment to what is now equation

6 on page 30, in line 2. See also what is now page 37, lines 4 and 14. It's not clear why

the same last term "p(d(k))" has been deleted by amendment from what is now equation

7 on page 30, in lines 7 and 8, and also from the equations on what is now page 31,

lines 8 and 12, on page 31, lines 12 and 13.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

3.   Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

Claims 1-3 are apparently method-type claims confusingly described as a

"means" in the preambles.

In claim 1, page 1, line 10 (as numbered in the margin), "A means for the new

turbo decoding a-posteriori probability $p(s,s'|y)$ in equations (13) of the invention

disclosure" apparently should be "A method for performing a new turbo decoding

algorithm using a-posteriori probability $p(s,s'|y)$ in equations (13)."

In claim 1, page 1, line 15, "MAP in turbo decoding and which comprises"

apparently should be "MAP, comprising."

In claim 1, page 2, line 32, "compolex" apparently should be "complex."

In claim 1, page 3, line 16, "equations realizes" is not grammatical.

In claim 1, page 3, line 9-22, the three clauses apparently should be "whereby"

clauses.

Claims 2 and 3 change "turbo" decoding to "convolutional" decoding, and thus

are not consistent with claim 1.

Claim Rejections - 35 USC § 103

4.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

5.   Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent No. 5,815,515 to Dabiri.

Dabiri discloses generating a linearized branch metric formula by transforming

the squared Euclidean distance, with the original squared Euclidean distance metric,

M_c, expressed as (using codeword c = "x"), $M_c = (y\text{-}x)(y\text{-}x)^T$ which presumably also

equals $|x\text{-}y|^2$ for a x as a single transmitted symbol. Dabiri discloses that squaring can

be dispensed with by expanding $(y\text{-}x)(y\text{-}x)^T$ into $M_c = \text{SUM}_{i=1,n}\{y_i^2\text{-}2x_iy_i+x_i^2\} = \text{SUM}_{i=1,n}\{y_i^2\}$

$+ \text{SUM}_{i=1,n}\{\text{-}2x_iy_i\} + \text{SUM}_{i=1,n}\{x_i^2\}$, which presumably equals $\text{-}y^2/2\sigma^2 + \text{Re}(yx^*)/\sigma^2$ -

$|x^2|/2\sigma^2$ for each symbol after scaling by $\text{-}1/2\sigma^2$ and upon assuming x is real so that 2xy

$= 2\text{Re}(yx^*)$. Dabiri further discloses eliminating the $\text{SUM}_{i=1,n}\{y_i^2\}$ term because it is

common to all metrics, thus leaving $\text{-}\text{Re}(yx^*)/\sigma^2 - |x^2|/2\sigma^2$ for each symbol after scaling

by $\text{-}1/2\sigma^2$. Dabiri discloses using this simplified branch metric in a Viterbi decoder, not a

turbo decoder. It would have been obvious to a person having ordinary skill in the art at

the time the invention was made to apply Dabiri's teaching of branch metric equation

simplification, which uses expansion of the terms squared and deletion of the y^2 term, to

the prior art metric $|x\text{-}y|^2/2\sigma^2$ acknowledged by applicant, thus yielding the "new" branch

metric $\text{-}\text{Re}(yx^*)/\sigma^2 - |x^2|/2\sigma^2$ for Viterbi decoding or turbo decoding.

Response to Arguments

6.   Applicant's arguments filed 30 December 2006 have been fully considered but

they are not persuasive.

The examiner is unable to completely follow applicants argument that there is "no

reason" to use Dabiri's metric for convolutional code decoding, because Dabiri actually

uses his metric for convolutional code decoding.

Conclusion

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Stephen M. Baker whose telephone number is (571)

272-3814. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30

PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stephen M. Baker
Primary Examiner
Art Unit 2133

smb